DOCUMENT RESUME

ED 139 096 EA 009 509

AUTHOR Powell, Marjorie; Cahen, Leonard S.
TITLE Policy Issues Related to Research on Instructional Time.
PUB DATE Apr 77
NOTE 22p.; Paper presented at the Annual Meeting of the American Educational Research Association (New York, N.Y., April 4-8, 1977)

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS *Academic Achievement; *Educational Policy; *Educational Research; Elementary Secondary Education; Program Evaluation; Student Teacher Relationship; *Teacher Behavior; Teacher Certification; Teacher Education; *Time Factors (Learning)

ABSTRACT

The implications of preliminary information about the relationships between allocated and engaged time and student achievement are discussed in terms of effects on teacher preparation programs. In addition, those who fund education at the state and local levels may be interested in the findings. The data have implications for testing students, evaluating teachers, and ensuring equality of instructional opportunity for students across a variety of classrooms. The importance of stating policy questions in ways that allow research to help in making policy decisions is noted. (Author/JG)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

ED139096

23 17
13 PA

POLICY ISSUES RELATED TO RESEARCH ON INSTRUCTIONAL TIME

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

Marjorie Powell
California Commission for
Teacher Preparation and Licensing

Leonard S. Cahen
Far West Laboratory for
Educational Research and Development

A number of relatively large research efforts during recent years have focused on teaching and specifically the relationship between teacher behaviors, performances, or competencies, and student learning. Instructional time has emerged as a variable recognized to be important in any attempt to better understand the relationship between the actions of teachers and the achievement of students. A second important linking variable in this complex relationship is recognized to be the behaviors or actions of students. It is the behaviors of students in instructional settings which effect pupil learning. The actions of teachers have direct effects upon the behaviors of students and through those student behaviors effect the achievement of students.

The concept of instructional time provides a context within which to view both the actions of teachers and the actions of students, and thereby provides a link between the two sets of actions. The concept of instructional time provides a way of viewing classroom

EA 009 509

---

1. The research discussed here is part of the Beginning Teacher Evaluation Study, being conducted by the Far West Laboratory for Educational Research and Development for the California Commission for Teacher Preparation and Licensing with funding from the National Institute of Education. However, the opinions expressed here are those of the authors and do not represent the official policy of any of the participating organizations.

functioning and the actions of participants in the classroom, as well as the impact of factors external to the classroom upon the functioning of the classroom.

Instructional Time Information

The amount of time available for instruction is determined by decisions at the state level relative to minimum length of school year. Decisions about length of school day also affect the amount of instructional time. At the classroom level, factors such as absences of students and teachers and numbers of special events which result in cancellation of normal instruction also limit the amount of time during which students are exposed to instruction.

Within the amount of time available for instruction, amounts of time to be allocated to a subject matter area are frequently enunciated by the state or the district. Textbooks are sometimes chosen for state-wide use or by all schools within a district, in part to assure common coverage of content on a given grade level.

However, teachers make decisions which have important effects on instructional time and content coverage. The more time used for transition from one activity to another, the less time available for instructional activities. The actual amount of time allocated to a subject area is determined by the teacher in the process of establishing a daily plan.

Teacher allocation of time within a content area varies greatly across classes. While materials, such as textbooks, may roughly define the limits of content coverage, they do not define the pro-

portions or actual amounts of time allocated to specific skills within a subject. Teachers make decisions about the amount of time devoted to instruction in specific skills within a content area.

It is further evident from conversations with teachers and reactions of teachers within the research sample to summaries of time allocation data that teachers have little sense of the total importance of time allocation decisions which may be made on a day to day or week to week basis. Teachers are not aware of the cumulative effect of their decisions over time. Neither are they aware of how their patterns of time allocation compare to time allocation patterns of other teachers. To some degree, there may be a common folk lore among teachers which conveys some of these decisions, such as that second graders do not have the facility in arithmetic to tackle subtraction with regrouping prior to Christmas, but such common knowledge is general and does not convey the degree to which teachers actually determine curriculum through decisions about the allocation of time.

At the same time, the commonality of instruction, or the percentage of students who receive the same instruction in the same content, varies widely within classes and across classes[2]. In some classrooms, the differential absence of students accounts for differences in instruction allocated to students. In other classrooms, students have widely different patterns of time allocation to content areas within a subject matter and to different instructional situations such as whole class instruction or individual independent work. In other words, the degree to which instruction is individualized for students varies from class to class.

A further difference occurs within and across classes, in the extent to which students are engaged in the instructional tasks to which they have been assigned.[3] The amount of time allocated by the teacher represents the maximum amount of instructional time per student (ignoring any possible time used by a student when he is nominally working on another task or when he has free time). Within the amount of allocated time, students are actually engaged in the instructional task for some amount of time. Student engaged time can be computed as a total amount of time and as a proportion of the allocated time.

There is great variation in student engaged time across and within classes. There are also variations across instructional settings for an individual student, i.e., engagement during 80 percent of the time in small group instruction but during only 10 percent of the time during independent individual work. An average estimate of engaged time is roughly two-thirds of the allocated time. Student engaged time is a function of many other variables, probably including differences in teaching behaviors, instructional settings, and the vast array of individual differences among students.

One result of the differences in time allocations to content areas is a difference in student opportunity to learn the skills and knowledges of the subject matter area.[4] Yet measures of student learning typically cover a specified range of content. Tests, therefore, may measure some of, all of, or more than the content covered within a particular class.

Teacher Knowledge and Skills

The research on instructional time has identified a number of things which teachers and district administrators need to know. These can be classed as aspects of teacher knowledge of and skills in teaching. Teachers need to know of the importance of the time allocation decisions which they make, and need to have ways to monitor the content coverage provided for their students.

School district personnel need to be aware of content coverage in terms of assessing the extent of match between the content taught and the content covered on standardized tests which may be administered to students, especially in any instances where results of such standardized tests are to be used to make instructional or other decisions about individual students or evaluation decisions about programs or teachers.

Teachers need to know about the impact of time allocation and instructional setting decisions on the extent to which instruction is individualized for students. Such dimensions provide a way of conceptualizing individualized instruction in terms of the functioning of the classroom, the impact on students, and the types of decisions made by teachers who may be attempting to provide individualized instruction. A system of recording content coverage, to allow for monitoring by the teacher, can also be used to record instructional setting assignments, providing the teacher with an index of individualization for the class and for students within the class.

The concept of student engagement in instructional tasks provides a way for teachers to refine information about instructional time

allocations and arrive at a more accurate assessment of the amount of time during which students can be anticipated to be learning. Teachers need to be aware of and sensitive to this distinction. Teachers need to have methods of identifying and monitoring student engaged time which may be the crucial intermediary link between their teaching behavior and student achievement.

There is also an apparent discrepancy between teacher and observer estimates of student engaged time.[5] Teacher estimates are related to and potentially confounded with student ability. Teachers need to have methods of recording and/or estimating student engaged time, within and across subject matter areas and instructional settings.

Implications for Teacher Education and Certification

One of the obvious implications of research on instructional time is in the area of knowledge of and concepts about the functioning of students and teachers, already discussed. In addition, the skills related to applying the knowledge, such as skill in monitoring student engaged time, have been discussed.

The research also has implications for any assessment of teachers or student teachers relative to their skills in allocating time to content areas, providing individualized instruction in terms of content and/or instructional settings, and in maintaining an appropriate amount of student engagement in instructional tasks. A further implication relates to assessment of teaching based on student achievement. In any attempt to base assessments of teaching on student learning, the extent of content coverage by

the students is an important factor which must be considered. Regardless of the type of instrumentation used to assess student achievement, the content which students had an opportunity to learn should form the basis against which the measures of teaching are related.

Any attempt to evaluate teaching, or the skills of teacher candidates, based solely on student outcomes is fallacious evaluation. Such evaluations must take into consideration the student behaviors engaged in during instructional activities. What it is that teachers get students to do in class is very important, and while certain student behaviors may lead to increases in student achievement, this is not always the case. In any evaluation of teaching, process data is as important as product data.

Related Research Findings and Their Importance

The research on instructional time provides us with descriptive information about classrooms and an indication of the variety of patterns of time allocation across classrooms. The importance of teacher decisions for student opportunity to learn and the fluctuating relationship of that opportunity to the contents of standardized tests have been illustrated. Further, we have learned that teachers can be fairly reliable reporters of the allocation of time to content areas and instructional settings. We do know that teachers are not accurate estimators of student engaged time. We do not know whether teachers can, with training, make adequate estimates of amounts of student engagement. Their ability to make these estimates is important in order that they can better manage their classes' engaged time. Whether teachers in a typical class,

with 30 students, can reliably estimate and competently manage student engaged time is not yet known.

However, there are a number of unanswered questions, questions which are important in any understanding of the role of instructional time in the teaching/learning process.

We do not have information about appropriate or differential amounts of engaged time. We do know that observed amounts and proportions of engaged time vary depending upon a number of factors. However, it might be anticipated that higher proportions of engaged time would occur during activities which are teacher-paced and teacher-supervised. We as adults take coffee breaks and require frequent short periods of distraction or rest from our work, particularly when that work involves cognitive activities It is natural to assume that students also need short pauses, to mentally "catch their breath," during instructional periods. Teachers need to know that students will be engaged during only portions of the allocated time, and that that portion will vary from student to student. On the other hand, teachers can increase the amount of engaged time by allocating instructional time within those instructional settings in which students are engaged for a higher proportion of time. Data from Phase II, BTES[6], indicate that many students do little work when assigned to independent individual activities. However, those few students who do work spend a high proportion of their time actively involved in instructional tasks in independent individual work situations.

The relationship between engaged time and student achievement is not clear. There are some indications from the data reported here

that allocated and engaged time are related to achievement.[7] However, ceiling effects in the student achievement test data severely limit the size of the correlation coefficients. In addition, it is to be anticipated that any relationship between engaged time and learning will be moderated by other variables, such as the appropriateness and quality of instruction. A student who is engaged in errors, or in work which is incomprehensible to him, will not be learning much which will be measured by achievement tests.

The potential for teacher monitoring of content coverage and engaged time for the number of students in a typical classroom is not known. The potential for differentiation of instruction for individual students within a typical classroom is not known. However, as research indicates that student engaged time, as well as extent of content covered, is related to student achievement, the question of what is humanly possible with large numbers of students in a class becomes more important. It is possible that a decrease in the number of students for whom a teacher has responsibility would be related to an increase in the amount of time each student is engaged in instructional activities. With fewer students a teacher may be able to monitor student engagement more closely, provide more appropriate instructional settings for each student, spend less time organizing for instruction and spend more time instructing students.

Relationship to Policy in Teacher Education

In identifying implications of the research for teacher education, we have not yet addressed the question of the relationship of

these findings to policy decisions concerning teacher education and certification. As a first step, a brief review of the state of teacher education and certification is in order.

Certification of teachers is a function performed by states, usually using a set of criteria unique to each state, although reciprocity agreements exist which enable teachers certified in one state to obtain a certificate in a number of other states. Most states have a number of certificates, authorizing the holder to perform various roles within the public schools, such as teacher and administrator. Within the category of teaching credentials, there are frequently subcategories, such as a preliminary credential, with a requirement for further training, experience, or both for the issuance of a more permanent credential or the renewal of a credential. Various positions are taken about what a credential means in terms of the competence and/or training of the person holding the credential. However, the credential is recognized to be an authorization to seek a job, or to be employed, but the process of making a decision about granting a credential is very different from the process of making a decision about employment.

The majority of states handle credentialling of educators through a process of approving programs of teacher education. Thus, the decisions about teacher education at the state level are apt to be decisions about what types of programs to approve, what process to use to approve programs, what types of teacher education to require in programs. Within California, decisions at the state level have focused on requirements for the inclusion of processes

or tasks within teacher education programs (such as follow-up of graduates), the types of information to be provided by teacher education programs to the program approval agency, and procedures for assessing whether programs are operating in accordance with the approved program plan.

Such a system, while incorporating requirements for teacher education, also provides for flexibility among institutions in terms of the content of teacher education. While teacher education programs are required to specify what their content is, they are not required, with some exceptions, to teach specific content. In other words, decisions about teacher education are shared between the state and the teacher education programs.

This discussion, to this point, has focused on preservice education and formal programs leading to advanced credentials. Inservice education also occurs and at the moment is in a state of turmoil. A variety of inservice activities occur at present, from organized programs at a school site, usually associated with a specially funded educational program, to individual teacher enrollment in courses leading to district salary increases. There is growing attention to inservice education, resulting in part from declining student enrollment and increased stability within the teaching population. The role of various groups, such as teachers and teacher educators, in inservice education is being debated. The relationship of inservice education to certification varies, and is being reconsidered.

With the knowledge that decisions in teacher education are shared, let's turn to a consideration of the process of making decisions.

General policy decisions in teacher education are made at the state level, as they relate to certification and state allocation of resources to teacher education, both preservice and inservice. Such policy decisions may be embodied in broad laws or guidelines, usually made after some public discussion and debate. Examples of these types of policy decisions are credential laws and regulations and guidelines used by state agencies to approve programs.

However, other policy decisions about teacher education are made at the state level as well. One type of decision relates to areas on which to focus or not focus attention. In the past, decisions have been made to ignore, or to consider as a low priority, inservice education. More recently, decisions have been made to focus on and initiate discussion and debate about inservice education.

A second type of decision is the series of implementation decisions made on a day to day basis by the persons who implement policy. Weatherley provides an analysis of the way decisions by implementors of policy affect and actually define the policy in the implementation of the new special education legislation in Massachusets.[8]

In teacher education at the state level, this involves decisions about the application of state policies and guidelines for program approval, decisions about appeals for waivers or exceptions to those guidelines, decisions about reciprocity agreements.

In addition, decisions made by teacher educators about specific programs implement and potentially modify state policies in teacher education. At the program level, decisions are made about how to implement state requirements. For example, if the state requires the inclusion of specific competencies, program level decisions are still necessary about the relative emphasis to give to various competencies, ways to teach them and ways to assess student mastery.

The making of policy in teacher education, or anywhere else, is not a simple monolithic process, but is instead composed of numerous decisions, made at several administrative and authority levels, with varying degrees of public involvement and scrutiny.

With this brief review of the way that policy is made, it is time to look at the types of information that are used in making such decisions. Without any attempt to enumerate all of the factors which influence decisions at the state or the local teacher education program level, a consideration of a few of the factors will be productive. Beliefs about the nature and responsibilities of teaching influence policy decisions. In California, the belief that adequate subject matter knowledge is essential to effective teaching has led to the requirement that credential candidates demonstrate mastery of a minimum level of subject matter knowledge. The conception of teaching as the application of discrete skills or competencies has led to the Competency Based Teacher Education movement (CBTE).

The concerns and desires of groups and organizations involved in teacher education influence decisions. In California, the

concern and interest of teacher organizations was instrumental in establishing an agency separate from the Department of Education with responsibility for teacher education. Assessments of political realities influence decisions and policy. The perceived willingness or lack of willingness of state legislatures to provide money for inservice education influences policies concerning inservice education. Knowledge about past experiences and experiences in other locations influence decisions. When states have considered CBTE they have sought information from other states regarding their experiences.

How does research information fit into this mix?

In some instances research results are used to justify specific policy decisions, if we use a broad definition of research to include the collection of survey information. Fenstermacher indicates that such use of research or survey information is frequently made to justify decisions which would be made anyway.[9] An example of this type of use of research information is the decisions by legislature, district administrators and teacher educators to focus on inservice education, since information about hirings and teacher turn-over indicate that few new teachers are finding jobs.

In other instances, policies are established and research and/or evaluation activities are then required as a basis for making decisions about the continuation or the modification of the policy. Federally funded programs, such as ESEA Title I and bilingual education, are examples of this use of research. Within teacher education, the movement to CBTE and the resulting attention to evaluations of CBTE programs and to research to identify

teaching competencies are examples of the desire to use evaluation and/or research information to make decisions concerning the future of policies which have already been established.

In many of these instances, the specific research or evaluation activities have limited impact on the specific decisions which they are intended to inform. For example, many evaluation reports are submitted to the funding agency months after a decision has been made relative to continued funding. Only in unique instances are policy decisions revised directly on the basis of the evaluation or research efforts which have been undertaken specifically to provide the information thought to be necessary to make such decisions.

However, the cumulative effect of evaluation and/or research studies may have an impact upon decisions about programs. The results of a number of studies of the effectiveness of a particular policy may result in changes in that policy. Cohen and Garet [10] argue, using as examples Head Start, Follow-Through, Planned Variation, and ESEA Title I, that "Even though individual studies typically affect no particular decisions, research traditions sometimes shape policy", (page 24). To the extent that research information influences the general climate of information about a policy area, the concepts which are used in thinking about a policy area, the results of a specific study have an indirect, and cummulative with other studies, effect on policy decisions.

The Beginning Teacher Evaluation Study is being conducted to inform policy decisions about teacher certification. General

policy concerns have been identified, as exemplified by the statement that a major goal of the total research project is to "determine what skills and knowledge a beginning teacher needs to have by identifying the skills and knowledge desirable for any teacher teaching reading and mathematics to elementary school students, and then to determine the necessary entry level skills for beginning teachers." The research was intended to provide information which would be relevant to decisions about certification and pre-service education of teachers. Little, if any, attention was given during the conceptualization of the research effort to the potential implications for inservice education or staff development for credentialled teachers.

However, specific policy questions have not been developed to guide the course of this research effort. This study is similar to other research efforts, in that specific questions, or the intended relationship between the research and the policy decisions, have not been clarified. This fuzziness in the relationship between policy and research conducted to inform policy appears to be the result of several factors: the inability of many policy makers and many researchers to clearly formulate questions to be addressed by the research; the inability of many researchers to provide clear answers to those questions which are formulated; the time lag between the asking and the answering of questions which may result in a shift in the importance of the questions.[11]

In terms of this study, some policy makers anticipated that the research effort would identify some number of generic teaching competencies which could form the basis for decisions relative to teacher certification, or which could be required to be included in all approved teacher education programs. Ignoring for the moment the issue of whether there are generic (effective in all situations) teaching competencies, the researchers have not been able to answer this broad question posed by the policy makers, "what are the important generic teaching skills?" Over the course of the study, which is still in progress, the major issues and the ways in which the policy makers conceptualized teaching have shifted. In part, these shifts can be attributed to the research. The involvement of the policy makers in continuous monitoring of and decision making concerning the research has modified the thinking of the policy makers. "One of the things we have learned is not that we didn't fulfill the hope of three years ago of finding generic competencies. What we found out is, that was a false hope." (Dr. Gary Fenstermacher)[12]

In this instance, then, there are three possible outcomes of the relationship between research and policy. It is possible that the research results will have no impact on policy decisions. While such an outcome is possible and even likely when there is little connection between researchers and policy makers, it has not happened in this case. However, lack of attention, early in the research effort, to the impact of the research on policy decisions has resulted in lack of empirical

evidence about the influence of the research on policy decisions. At this point in time, individuals may testify to the influence of the research, but other evidence is not available. Such evidence as could be compiled would be indirect. An analysis of shifts in types of decisions or in justification for decisions would provide such indirect evidence of an impact of the research on policy decisions.

A second outcome would be the use of the research results as a partial basis for making specific decisions related to teacher education. An example of this outcome might be the use of information about 1) differences in time allocations across classrooms and 2) the different degrees of congruence between teacher allocations of time to skills in reading and emphasis upon reading skills in standardized tests in making decisions about content or objectives in a teacher education program. Another example might be a decision to have teacher education candidates monitor the engagement of students during their classroom visits prior to student teaching. In these examples the research findings are considered in making one or a series of decisions within teacher education, decisions which, in the aggregate, implement broad policy decisions and therefore in reality become the policy decisions.

A third alternative is that the research results will influence the assumptions about and conceptualizations of policy issues. Policy makers involved in this research effort have indicated that these sorts of changes have occurred. "The criterion for the success of the study is, 'has it made us any wiser in our

ability to deliberate about the kinds of decisions we have to make?'" (Dr. Gary Fenstermacher)[13] However, as already indicated, documentation of these statements would be difficult at best.

While the relationship between research and policy in this study, as in others, is fuzzy and complex, there are ways in which the research can inform policy decisions, and there are research results which have implications for such policy decisions.

FOOTNOTES

2. Fisher, 1976 a,b; Filby, 1976.
3. Ibid.
4. Filby, 1976.
5. Fisher, 1976 a, b; Filby, 1976.
6. Lambert, 1976.
7. Fisher, 1976 a, b.
8. Weatherley, 1976.
9. Fenstermacher, 1976.
10. Cohen and Garet, 1975.
11. Rivlin, 1975.
12. Planning and Research Committee meeting, Dr. Gary Fenstermacher speaking.
13. Ibid.

REFERENCES

Cohen, David K. and Garet, Michael S. "Reforming Educational Policy With Applied Social Research," Harvard Educational Review, V45, No. 1, February, 1975.

Fenstermacher, Gary D. "Policy and Research in Teacher Education," a paper presented at the Annual Meeting of the American Educational Research Association, 1976, as part of a symposium on Educational Research and Public Policy.

Filby, Nikola N. and Dishaw, Marilyn. Refinement of reading and mathematics tests through an analysis of reactivity. San Francisco, CA: Technical Report III-6, Beginning Teacher Evaluation Study, Far West Laboratory for Educational Research and Development, 1976.

Fisher, Charles W. et al. A study of instructional time in grade 2 mathematics. San Francisco, CA: Technical Report II-3, Beginning Teacher Evaluation Study, Far West Laboratory for Educational Research and Development, 1976.

Fisher, Charles W., et al. A study of Instructional time in grade 2 reading. San Francisco, CA: Technical Report II-4, Beginning Teacher Evaluation Study, Far West Laboratory for Educational Research and Development, 1976.

Lambert, Nadine M., and Hartsough, Carolyn S. "APPLE Observation Variables and Their Relationship to Reading and Mathematics Achievement," Beginning Teacher Evaluation Study: Phase II, 1973-74, Final Report. V III.1, Princeton, N. J., Educational Testing Service, 1976.

Planning and Research Committee of the California Commission for Teacher Preparation and Licensing, January, 1977, unpublished notes.

Rivlin, Alice M. and Timpani, Michael P. Planned Variation in Education: Should We Give Up or Try Harder? Washington, D.C., The Brookings Institute, 1975.

Weatherley, Richard and Lipsky, Michael. "Street-Level Beaurocrats and Institutional Innovation: Implementing Special Education Reform in Massachusetts," a paper delivered at the 1976 Annual Meeting of the American Political Science Association.